

## METHOD OF WIRELESSLY ACCESSING NETWORK

### FIELD OF THE INVENTION

The present invention relates to network accessing and more particularly to  
5 a method of wirelessly accessing a network (e.g., Hinet available from  
Chunghwa Telecom Company in Taiwan) by a host (e.g., personal computer or  
notebook computer) via a mobile communication device (e.g., cellular phone).

### BACKGROUND OF THE INVENTION

10 This is a fast changing age due to quick information exchange. Also, people  
have an increasing demand for obtaining information and for exchanging  
information. Hence, for keeping up with the trend, many people use cellular  
phones as an indispensable tool of their daily life. It only takes several years  
from the birth of cellular phone to the worldwide use thereof. For some people,  
15 they even own more than one cellular phone. Cellular phones have increased  
interaction and information exchange among people. It is typical that you may  
find a busy person, whether on the street, subway, or doing other things, using a  
cellular phone for making or receiving a call at any time of the day. Moreover,  
many cellular phone manufacturers state that their cellular phones can cover all  
20 communication regions. In other words, a person can use the cellular phone for  
communication at any place. Further, more advanced features are added in a  
cellular phone in which Internet accessing is an important one of the features for  
the convenience of user.

However, Internet accessing speed of a conventional cellular phone is very  
25 slow. Also, the cellular phone is less convenient than a personal computer (PC)  
or notebook computer (NB) in accessing the Internet. This is because many keys  
of the cellular phone are multiple input keys. Also, the keys are closely arranged.

It is often that a user may delete previous input data if enough care is not taken. Hence, it is time consuming and inconvenient. Further, it is often that a businessman may take a PC or NB while traveling. As such, the businessman can use the PC or NB to retrieve information from the Internet or to handle some emergency things on the Internet. However, sometimes there is no telephone line available for coupling the PC or NB to the Internet. As such, the only choice for a computer is to access the Internet via a cellular phone.

As stated above, Internet accessing speed of a conventional cellular phone is very slow. Also, the cellular phone is less convenient than the PC or NB in accessing the Internet. Further, a cellular phone has become more compact for ease of being carried by a user. Unfortunately, it is a very difficult and time consuming task of inputting data from a cellular phone. To the worse, many keys of the cellular phone are multiple input keys. It is often that a user may delete previous input data if enough care is not taken.

Thus, it is desirable to provide a fast network permitting an access thereto in any place any time. Next, it is possible of taking advantage of the popularity of cellular phones and 802.11 technique of high data transfer rate in cooperation with a PC or NB. Eventually, a network capable of transferring data in a high rate in any place any time is obtained by combining all of the above components together.

The operating principle of the above 802.11 technique of high data transfer rate is that not only data but also voice can be sent in a frequency of 2.45GHz. Each 802.11 connecting device has a 48bit address defined by IEEE (Institute of Electrical and Electronics Engineers) 802. It can be connected in a one-to-one or one-to-many mode with a transfer distance ranged from about 10 meters to about 100 meters. The 802.11 technique not only has a high data transfer capacity but also permits an encryption. A frequency switch rate is about 1,600

times per minute. Frequency can be divided into a plurality of small channels by means of frequency jumping technique. Further, a signal is transmitted among the channels randomly for preventing one electronic device from interfering with the other. Initially, the data transfer rate is from about 21Kbps to about 432Kbps.

5 Desirably, it will reach up to 2Mbps in the near future.

Moreover, signal sent by the 802.11 technique has a strong penetration capability. In a typical example, it can penetrate into a wall about 10 meters. Hence, data transferred by the 802.11 technique can be carried out irrespective of the existence of wall, pocket, or briefcase. In addition, the 802.11 technique  
10 can carry out a data transfer rate higher than that of an IR (infrared) transmission. Additionally, a data transfer rate of the 802.11 technique is about 20 times higher than that of a conventional modem.

It is understood that a cellular phone is portable. Hence, a user does not need to worry about no network available for accessing the Internet at any time if  
15 a cellular phone is combined with the 802.11 technique. As such, it is possible of quickly, wirelessly accessing the Internet by taking advantage of both a cellular phone incorporated the 802.11 technique and a host incorporated the 802.11 technique. Further, a recipient at the other end of the Internet can quickly receive data by means of the 802.11 technique of high data transfer rate.

20 In view of the above, there are many restrictions about accessing the Internet by means of a PC or NB in any place any time. In another aspect, calls made by cellular phones are increased gradually and more and more people have at least one cellular phone. Thus, it is desirable to combine a cellular phone incorporated the 802.11 technique by taking advantage of the high data transfer  
25 rate of the 802.11 technique in which a cellular phone incorporated the 802.11 technique is combined with a PC or NB incorporated the 802.11 technique. As such, the PC or NB can access the Internet via the cellular phone for transferring

data by utilizing the 802.11 technique. This is desirable among vast users.

## SUMMARY OF THE INVENTION

A primary object of the present invention is to provide a method of wirelessly  
5 accessing network. The present invention enables a user to use his/her cellular  
phone to access the Internet in any place any time by coupling an 802.11  
interface of the cellular phone to a computer also having an 802.11 interface.  
Moreover, data can be transmitted securely between the cellular phone and the  
internet in faster rate by taking advantage of the 802.11 interface of high data  
10 transfer rate and frequency jumping technique. Further, locations of both the  
cellular phone and the computer can be adjusted as needed. In other words,  
neither the cellular phone nor the computer is needed to fix at the same place.  
By utilizing the present invention, the above drawback of the prior art can be  
overcome. These drawbacks are that no telephone line is available for coupling  
15 a PC or NB to the Internet when the PC or NB is carried by a person leaving the  
office. Also, Internet accessing speed of a prior cellular phone is very slow.  
Further, the cellular phone is less convenient than the PC or the NB in accessing  
the Internet. Furthermore, many keys of the cellular phone are multiple input  
keys.

20 Another object of the present invention is to provide a method of wirelessly  
accessing network for greatly reducing hardware cost. In detail, a user does not  
need to install a network cable. Also, a user can adjust the locations of both the  
cellular phone and the computer as needed. Further, the cellular phone carried  
by a user can be used as a modem. Hence, the purpose of quickly accessing the  
25 Internet in any place any time can be achieved.

The above and other objects, features and advantages of the present  
invention will become apparent from the following detailed description taken with

the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram according to the invention; and

5        FIG. 2 is a flow chart showing a sequence of method steps performed by the invention.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 1, there is shown a method of wirelessly accessing  
10    network in accordance with the invention. The method is implemented in a  
mobile communication device (e.g., cellular phone) 10 capable of accessing the  
Internet and a host (e.g., PC or NB) 20 in which a 802.11 interface 11 of high  
data transfer rate is provided in the mobile communication device 10 and a  
802.11 interface 21 of high data transfer rate is provided in the host 20  
15    respectively. The host 20 further comprises an operating system 23. After a  
connection between the 802.11 interface 21 of the host 20 and the 802.11  
interface 11 of the mobile communication device 10 has been detected, the  
operating system 23 of the host 20 will receive a data setting from the mobile  
communication device 10 and then activates a driver 22 of the host 20. As such,  
20    signal about the connection of the mobile communication device 10 and a  
network (e.g., Hinet for accessing the Internet) 30 will be transmitted to the  
mobile communication device 10. After receiving the connection signal by the  
mobile communication device 10, a driver 12 of the mobile communication  
device 10 will be activated for finishing the setting of the mobile communication  
25    device 10. At the same time, a connection to the network 30 is established. In  
such a manner, a user can wirelessly access the network 30 by means of the  
host 20 via the mobile communication device 10.

Referring to FIG. 1 again, in the structure of the invention the mobile communication device 10 comprises a driver 12, an operating system 13, a data setting unit 14, and a 802.11 interface 11. The host 20 comprises a driver 22, an operating system 23, and a 802.11 interface 21. After a connection between the 802.11 interface 21 of the host 20 and the 802.11 interface 11 of the mobile communication device 10 has been detected, the mobile communication device 10 can be viewed as a modem. Next, the host 20 can carry out a dialing via the mobile communication device 10. At the same time, the host 20 will request the mobile communication device 10 to send data settings from the data setting unit 14 to the 802.11 interface 21 of the host 20 via the 802.11 interface 11. After receiving the data settings by the 802.11 interface 21 of the host 20, the operating system 23 is activated. As a result, a signal for interconnecting the mobile communication device 10 and the network 30 is transmitted to the mobile communication device 10 via the 802.11 interface 21 of the host 20 and the 802.11 interface 11 of the mobile communication device 10.

In addition, after the 802.11 interface 11 of the mobile communication device 10 receiving a signal for interconnecting the host 20 and the network 30, the signal is then transmitted to the operating system 13 of the mobile communication device 10. Next, the operating system 13 will activate the driver 12 for finishing the setting of the mobile communication device 10 and at the same time for connecting to the network 30.

As stated above, the mobile communication device 10 is taken as modem by the invention. Hence, the host 20 can be coupled to the network 30. And in turn, the host 20 takes advantage of technologies of the high data transfer rate of the 802.11 interfaces 11 and 21. The technology is a combination of communication and information technologies involving radio transmission. Its purpose is to overcome the constraints imposed by different connectors and

communication specifications of the current electronic devices, computers, and communication devices and integrate them. It is implemented as an open platform. Thus, any two electronic devices incorporating the technologies of the 802.11 interfaces 11 and 21 can communicate each other freely.

5 Referring to FIG. 2 in conjunction with FIG. 1, a process of wirelessly accessing the Internet by the host 20 via the mobile communication device 10 comprises the steps of:

In step 201, first the operating system 23 of the host 20 detects and determines whether a connection between the 802.11 interface 21 of the host 20  
10 and the 802.11 interface 11 of the mobile communication device 10 has been established. If yes, the process goes to step 202. Otherwise, the process loops back to itself for continuation.

In step 202, the host 20 requests the mobile communication device 10 to send data settings from the data setting unit 14 to the 802.11 interface 21 of the  
15 host 20 for receiving via the 802.11 interface 11.

In step 203, activate the driver 22 of the host 20. Also, a signal for interconnecting the mobile communication device 10 and the network 30 is transmitted to the mobile communication device 10 via the 802.11 interface 21 of the host 20 and the 802.11 interface 11 of the mobile communication device 10.

20 In step 204, after the mobile communication device 10 receiving a signal for interconnecting itself and the network 30 from the host 20, the driver 12 of the mobile communication device 10 will be activated for finishing the setting of the mobile communication device 10. At the same time, a connection to the network 30 is finished and the process of wirelessly accessing the Internet by the host 20  
25 via the mobile communication device 10 is ended. In such a manner, a user can wirelessly access the network 30 by means of the host 20 via the mobile communication device 10.

As stated above, the invention is embodied in a computer, a cellular phone, and a Databank for wireless data transfer. Thus, the computer, the cellular phone, the Databank, etc. can be integrated with a telephone and a computer at home or office. Also, a three-in-one machine can have the capabilities of data transfer, printing, etc. by integrating the computer, the cellular phone, the Databank, and a fax. Further, the invention is adapted to embody at home or office. The only requirement is that each coupled device should have the 802.11 interfaces 11 and 21.

The method of wirelessly accessing network by a host via a mobile communication device of the invention is embodied by taking advantage of the 802.11 interfaces 11 and 21. Hence, the invention allows two devices, even not aligned, to transfer data wirelessly. As to other wireless data transfer techniques such as IR data transfer, the most significant drawback thereof is that a user has to align two ports prior to transferring data. Also, a data transfer distance thereof is at most 2 meters.

While the invention has been described by means of specific embodiments, numerous modifications and variations could be made thereto by those skilled in the art without departing from the scope and spirit of the invention set forth in the claims.